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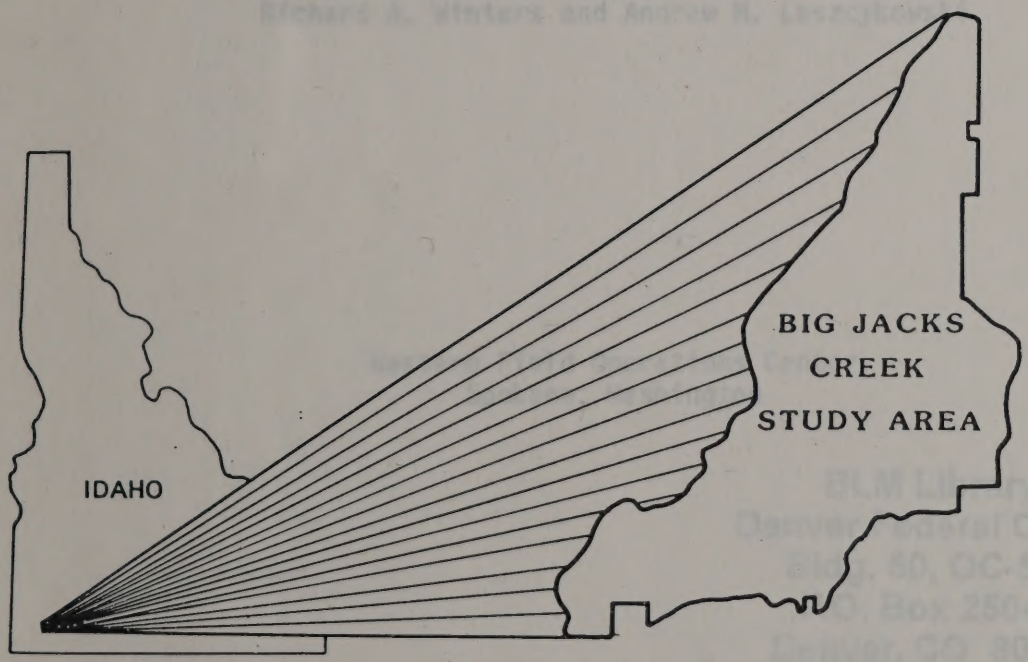
Mineral Resources of the Big Jacks Creek Study Area, Owyhee County, Idaho



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UNITED STATES DEPARTMENT OF THE INTERIOR

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MINERAL RESOURCES OF THE BIG JACKS CREEK STUDY AREA, OWYHEE COUNTY, IDAHO

By
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Donald P. Hodel, Secretary

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PREFACE

The Federal Land Policy and Management Act (Public Law 94-579, October 21, 1976) requires the U.S. Geological Survey and U.S. Bureau of Mines to conduct mineral surveys on U.S. Bureau of Land Management administered land designated as Wilderness Study Areas ". . . to determine the mineral values, if any, that may be present . . . ." Results must be made available to the public and submitted to the President and the Congress. This report presents the results of a Bureau of Mines mineral survey of a portion of the Big Jacks Creek Wilderness Study Area (ID-111-7C), Owyhee County, ID.

This open-file report will be summarized in a joint report published by the U.S. Geological Survey. The data were gathered and interpreted by Bureau of Mines personnel from Western Field Operations Center, East 360 Third Avenue, Spokane, WA 99202. The report has been edited by members of the Branch of Mineral Land Assessment at the field center and reviewed at the Division of Mineral Land Assessment, Washington, DC.

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SUMMARY

In 1985, at the request of the U.S. Bureau of Land Management, the U.S. Bureau of Mines studied 49,875 acres of the 54,833-acre Big Jacks Creek Wilderness Study Area (ID-111-7C) in order to evaluate the mineral resources. The study area is located in Owyhee County, ID, about 15 miles southwest from Bruneau, ID. No mining districts are in the study area, but part of one placer claim, located in 1924, extended into it. The northern portion of the area was covered by oil and gas lease applications; all were cancelled prior to 1985. No economic concentrations of minerals were found in the study area.

INTRODUCTION

This report describes the USBM (U.S. Bureau of Mines) portion of a cooperative study with the USGS (U.S. Geological Survey) to evaluate mineral resources and potential of the Big Jacks Creek study area at the request of the BLM (U.S. Bureau of Land Management). The USBM examines individual mines, prospects, claims, and mineralized zones, and evaluates identified mineral and energy resources. The USGS evaluates potential for undiscovered resources based on areal geological, geochemical, and geophysical surveys. Results of the investigations will be used to help determine the suitability of the study area for inclusion into the National Wilderness Preservation System. Although the immediate goal of this and other USBM mineral surveys is to provide data for the President, Congress, government agencies, and the public for land-use decisions, the long-term objective is to ensure the Nation has an adequate and dependable supply of minerals at a reasonable cost.

Setting

The Big Jacks Creek study area, consisting of 49,875 acres of the 54,833-acre Big Jacks Creek WSA (Wilderness Study Area), is located 15 mi (miles) southwest of Bruneau, ID (figs. 1 and 2). It lies immediately east of the Little Jacks Creek study area (Winters and Leszcykowski, 1986a) and north of the Duncan Creek study area (Winters and Leszcykowski, 1986b). The area is roughly bounded by unimproved roads, plus a pipeline corridor on the west, and is accessible from Idaho Highway 51. From Bruneau, ID, access is south on route 51 for 9 mi then west on unimproved roads for about 6 mi to a network of roads around and into the area.

Highest elevation in the area studied is 5,880 ft (feet) in the southwestern portion. The low point is 2,960 ft in the northeast. Flowing east, then north from its headwaters, Big Jacks Creek enters the southwestern portion of the study area, then follows a near-vertical-walled canyon several hundred feet deep through the remainder of the area.

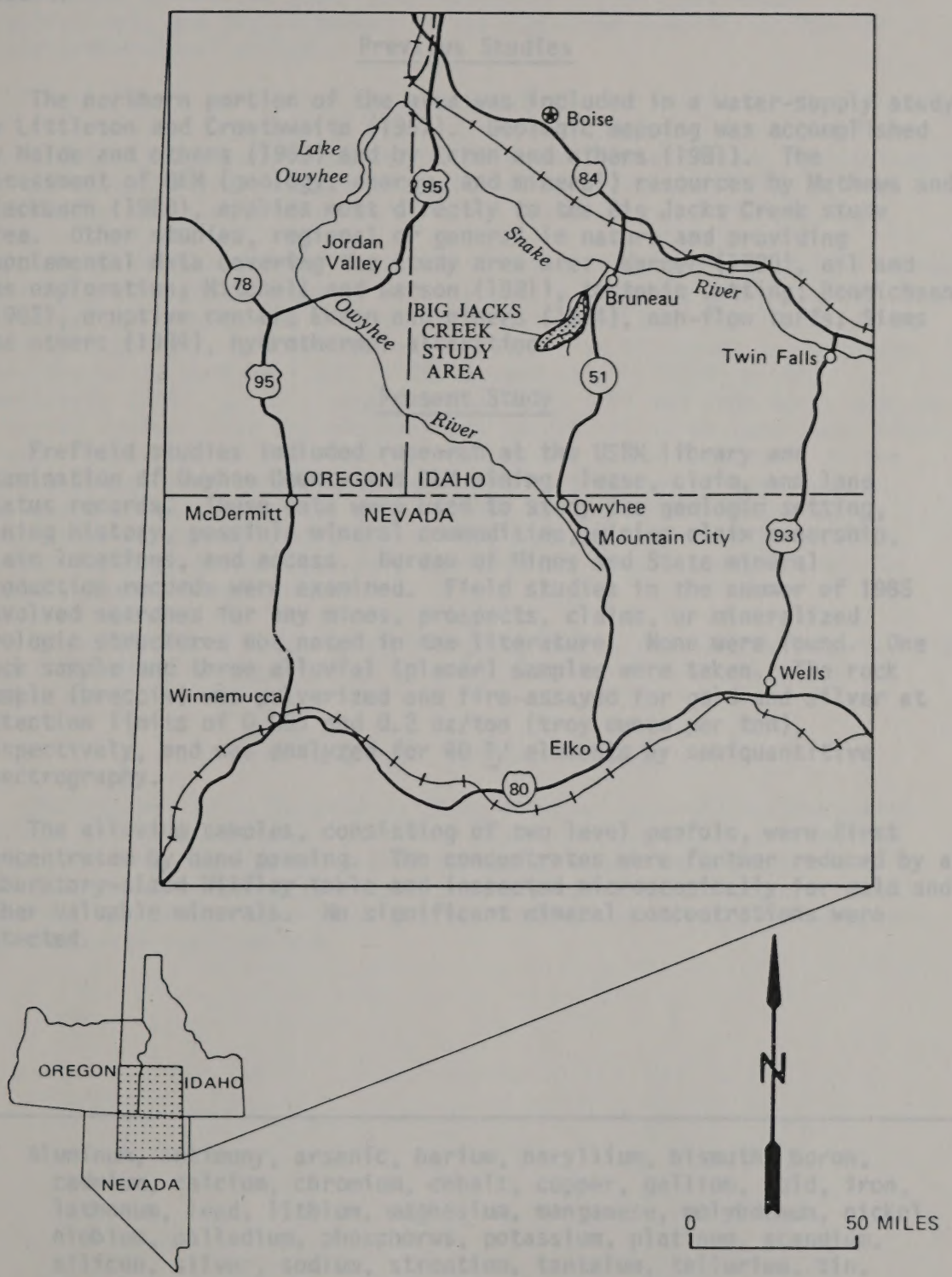

FIGURE 1. – Location of the Big Jacks Creek study area, Owyhee County, ID

The study area is in a semiarid zone, receiving 10 to 20 in. (inches) of precipitation annually, mostly during the winter months. The low brush (sage is dominant) and grasses are typical of the southern Idaho desert.

Previous Studies

The northern portion of the area was included in a water-supply study by Littleton and Crosthwaite (1957). Geologic mapping was accomplished by Malde and others (1963) and by Ekren and others (1981). The assessment of GEM (geology, energy, and mineral) resources by Mathews and Blackburn (1983), applies most directly to the Big Jacks Creek study area. Other studies, regional or general in nature and providing supplemental data covering the study area are: Warner (1980), oil and gas exploration; Mitchell and Garson (1981), tectonic setting; Bonnichsen (1982), eruptive center; Ekren and others (1984), ash-flow tuffs; Siems and others (1984), hydrothermal alteration.

Present Study

Prefield studies included research at the USBM library and examination of Owyhee County and BLM mining, lease, claim, and land status records. These data were used to study the geologic setting, mining history, possible mineral commodities, mining claim ownership, claim locations, and access. Bureau of Mines and State mineral production records were examined. Field studies in the summer of 1985 involved searches for any mines, prospects, claims, or mineralized geologic structures not noted in the literature. None were found. One rock sample and three alluvial (placer) samples were taken. The rock sample (breccia) was pulverized and fire-assayed for gold and silver at detection limits of 0.005 and 0.2 oz/ton (troy ounce per ton), respectively, and was analyzed for 40 1/ elements by semiquantitive spectrography.

The alluvium samples, consisting of two level panfuls, were first concentrated by hand panning. The concentrates were further reduced by a laboratory-sized Wilfley table and inspected microscopically for gold and other valuable minerals. No significant mineral concentrations were detected.

1/ Aluminum, antimony, arsenic, barium, beryllium, bismuth, boron, cadmium, calcium, chromium, cobalt, copper, gallium, gold, iron, lathanum, lead, lithium, magnesium, manganese, molybdenum, nickel, niobium, palladium, phosphorus, potassium, platinum, scandium, silicon, silver, sodium, strontium, tantalum, tellurium, tin, titanium, vanadium, yttrium, zinc, and zirconium.

ACKNOWLEDGEMENTS

The authors wish to thank Julia Cannon and Buneta Wilson of the BLM Idaho State Office for their compilation of oil and gas lease applications, and the personnel of the BLM Boise District Office for their professional advice.

GEOLOGIC SETTING

The Big Jacks Creek study area is in the Owyhee Uplands subprovince of the Columbia Intermontane geologic province (Pansze, 1975, p. 1), informally known as the Owyhee volcanic field (Pansze, 1975, p. 9).

In the study area, only two rock units are exposed. The older is the Tuff of Little Jacks Creek of Miocene age, a ledge-forming, flow-layered rhyolite tuff (Ekren and others, 1982, p. 229). The true thickness of this tuff has not been determined; however, its thickness in the study area may be as much as 1,000 ft (Ekren and others, 1984, p. 55). Bonnichsen (1982, p. 252) suggests that this tuff was from vents near an eruptive center along the southwestern margin of the western Snake River Plain. Ekren and others (1984, p. 50 and 65) place the source of the Little Jacks Creek Tuff in the same general area, which they feel is expressed today as a gentle dome without any structural features indicative of cauldera subsidence. The tuff is capped in part by the Banbury Basalt, the younger unit in the area. The composition of the basement rock is unknown.

Sand and gravel occurrences along Big Jacks Creek and tributaries are small in volume and consist of material derived from local extrusive rocks.

APPRAISAL OF MINERAL RESOURCES

One placer claim, located in 1924, extended into the northern-most portion of the study area. No other mines, prospects, or mineralized structures were identified within the study area. No economic concentrations of minerals were detected in any of the rock or placer samples. No known exploration has occurred on the areas covered by oil and gas lease applications.

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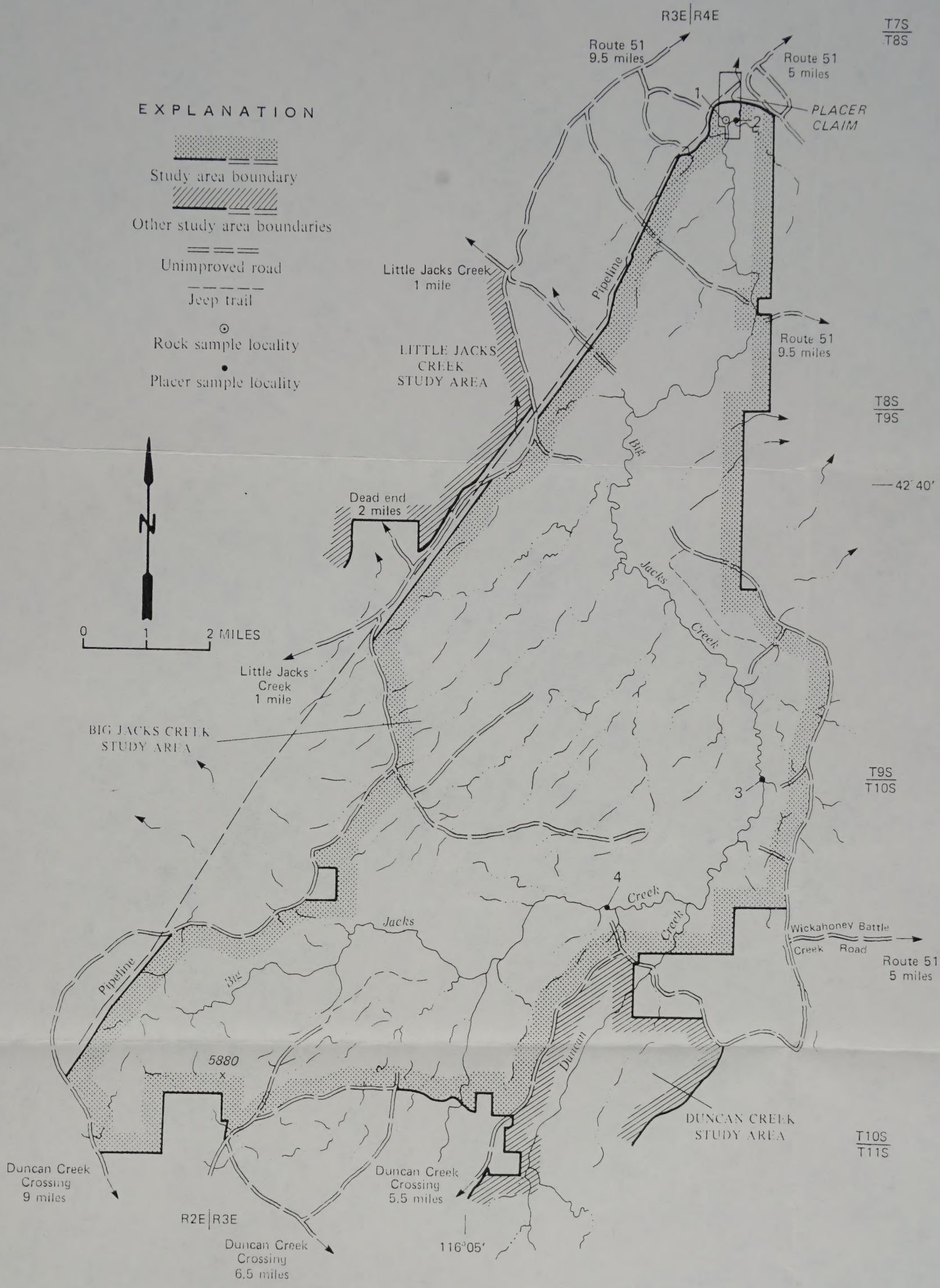

FIGURE 2 -- Big Jacks Creek study area, Owyhee County, ID

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